

Claims:

1. A hydrogen refueling station comprising:
 - a portable enclosure;
 - 5 at least one feed line whereinto hydrogen can flow;
 - at least one compressor means, within the enclosure, connected to the at least one feed line;
 - one or more hydrogen storage tanks, within the enclosure, connected to the at least one feed line downstream from the at least one compressor means;
 - 10 at least one control valve connected to the at least one feed line;
 - at least one reversible connector, whereby hydrogen from the at least one hydrogen storage tank can be dispensed;
 - at least one cooling means, wherethrough hydrogen can flow; and,
 - 15 at least one system controller to control at least one of the at least one control valve or the at least one compressor means, whereby the flow of hydrogen within the refueling station is affected.
2. The transportable hydrogen refueling station of claim 1 wherein each of at least one compressor means is selected from the group consisting of a compressor and an intensifier.
- 20 3. The transportable hydrogen refueling station of claim 1 wherein each compressor means comprises an oil cooled intensifier.
4. The transportable hydrogen refueling station of claim 1 wherein at least one or more hydrogen storage tanks have a burst pressure rating of at least 12,000 psi.
- 25 5. The transportable hydrogen refueling station of claim 2 wherein one or more hydrogen storage tanks can store at least 3,500 grams of hydrogen.
- 30 6. The transportable hydrogen refueling station of claim 1 wherein the gross loaded weight of the refueling station is less than about 4,000 pounds.
7. The transportable hydrogen refueling station of claim 2 wherein one or more hydrogen storage tanks can store at least 7,500 grams of hydrogen.

35

8. The transportable hydrogen refueling station of claim 1 wherein the gross loaded weight of the refueling station is less than about 5,500 pounds.

9. The transportable hydrogen refueling station of claim I wherein each of at least one cooling means is selected from the group consisting of heat exchangers, coolers and radiators.

10. The hydrogen refueling station of claim 1 wherein the portable enclosure is a trailer.

11. A hydrogen re-fueling system comprising:

10 a portable enclosure;
one or more hydrogen storage tanks, within the enclosure;
at least one reversible connector, whereby hydrogen from at least one hydrogen storage tank can be dispensed;
at least one control valve;
15 at least one cooling means, wherethrough hydrogen can flow; and,
at least one system controller to control at least one control valve, whereby the flow of hydrogen to the reversible connector is affected.

12. The hydrogen refueling station of claim 11 wherein the portable enclosure is a trailer.

20 13. The transportable hydrogen refueling station of claim II wherein at least one or more hydrogen storage tanks have a burst pressure rating of at least 22,500 psi.

14. The transportable hydrogen refueling station of claim 11 wherein one or more 25 hydrogen storage tanks can store at least 35 grams of hydrogen.

15. The transportable hydrogen refueling station of claim 11 wherein each of at least one cooling means is selected from the group consisting of heat exchangers, coolers and radiators.

16. A hydrogen refueling station comprising:
a portable enclosure;
at least one feed line whereinto hydrogen can flow;
a hydrogen producing subsystem, which has at least a hydrogen producing unit and a
5 hydrogen cooling unit, connected at one end to the feed line;
at least one compressor means, within the enclosure, connected to at least one feed
line downstream from the hydrogen producing subsystem;
one or more hydrogen storage tanks, within the enclosure, connected to at least one
feed line downstream from at least one compressor means;
10 at least one control valve connected to at least one feed line;
at least one reversible connector, whereby hydrogen from at least one hydrogen
storage tank can be dispensed;
at least one cooling means, wherethrough hydrogen can flow; and,
at least one system controller to control at least one control valve, at least one
15 compressor means, and the hydrogen producing subsystem whereby the flow of
hydrogen within the refueling station is affected.

17. The hydrogen refueling station of claim 16 wherein the portable enclosure is a trailer.

20 18. The hydrogen refueling station of claim 16 wherein the hydrogen producing unit is a
KOH electrolyzer.

19. The hydrogen refueling station of claim 1 wherein the hydrogen cooling unit is a
closed loop cooler.

25 20. The hydrogen refueling station of claim 1 further comprising a tank of pressurized
inert gas connected to at least one feed line; whereby introduction of the inert gas into the
feed line will purge at least a portion of the feed line and/or the reversible connector.

30 21. The hydrogen refueling station of claim 9 further comprising a tank of pressurized
inert gas connected to at least one feed line; whereby introduction of the inert gas into the
feed line will purge at least a portion of the feed line and/or the reversible connector.

35 22. The hydrogen refueling station of claim 14 further comprising a tank of pressurized
inert gas connected to at least one feed line; whereby introduction of the inert gas into the
feed line will purge at least a portion of the feed line and/or the reversible connector.

23. The hydrogen refueling station of claim 16 further comprising a tank of pressurized inert gas connected to at least one feed line; whereby introduction of the inert gas into the feed line will purge at least a portion of the feed line and/or the reversible connector.

5 24. A hydrogen refueling station comprising:

a portable enclosure;

at least one feed line whereinto hydrogen can flow;

a hydrogen producing subsystem, which has at least a hydrogen producing unit and a cooling unit, connected at one end to the feed line;

10 at least one compressor means, within the enclosure, connected to at least one feed line;

one or more hydrogen storage tanks, within the enclosure, connected to at least one feed line downstream from at least one compressor means;

at least one control valve connected to at least one feed line;

15 at least one reversible connector, whereby hydrogen from at least one hydrogen storage tank can be dispensed;

at least one cooling means, wherethrough hydrogen can flow;

at least one system controller to control at least one control valve or at least one compressor means, whereby the flow of hydrogen within the refueling station is affected; and a second system controller to control the hydrogen producing subsystem.

20
25. The hydrogen refueling station of claim 1 further comprising inert gas to purge at least a portion of the feed line.

25